TECHNICAL DICTIONARY FOR COATINGS

ABRASIVE: A substance used for wearing away a surface by friction. Examples of abrasives include powdered pumice, rottenstone, sand paper, steel wool and rubbing compound.

ABSORPTION: The act of taking up, drinking in or assimilating. A surface is considered absorbent when it takes into itself and holds the finishing material applied over it.

ACCELERATE: To hasten or quicken the natural progress of an event or series of events. For example, the drying of finishing materials is accelerated by an increase of temperature.

ACCELERATED TEST: A test in which the conditions are chosen so as to obtain the results, such as the effect of weathering on a coating, in a shorter amount of time than would be required under other conditions.

ACETATES: A group of organic solvents used in making lacquers and other coatings. Acetates are derived from the reaction of alcohols with acetic acid. The acetate usually takes its name from the alcohol, such as ethyl acetate from ethyl alcohol.

ACID NUMBER: An expression of the amount of free acid in fats, oils, waxes and resins or solutions thereof, expressed as the number of milligrams of potassium hydroxide required to neutralize one gram of the material being tested.

ACRYLIC RESIN: A synthetic resin, water-white in color, very transparent, and resistant to discoloration, moisture, alcohols, acids, alkalies and mineral oils.

ACTINIC RAYS: Those rays of light that cause chemical changes in films of finishing materials. These rays are the shorter wavelengths in the spectrum, in the blue and ultra-violet range. These rays, in conjunction with moisture and temperature changes, contribute to the deterioration of films.

ACTIVE SOLVENT: A solvent that will readily dissolve or liquify a resin.

ADHESION: The property that causes one material to stick to another. This can be affected by the condition of the surface to be coated, by the closeness of contact, as well as by the molecular forces of the unlike substances.

ADSORPTION: A type of adhesion that occurs at the surface of a solid or liquid in contact with another medium, thus allowing an increased number of molecules of the gas or liquid to become attached to the surface of the solid at the point of contact.

ADULTERATION: The act of substituting one substance in whole or part for another that usually results in a cost reduction.

AGING: Allowing a coating to stand undisturbed for an extensive period of time. Aging improves most clear finishing materials through greater clarity but some varnishes, paints and enamels tend to skin over, thicken, or deteriorate in other ways or their chemical or physical properties are unstable.

AGGREGATE: A group of two or more particles of a material that are held together so tightly by adhesive forces that they tend to remain intact as a group. The grinding of paint or enamel is required principally for breaking apart aggregates of pigment particles rather than for reducing the size of the individual particle.

AIR DRYING: The drying process used with a finishing material that is capable of hardening or curing at ordinary room temperature, i.e., 60°F to 80°F.

ALCOHOL: In the finishing material industry, this is generally understood to mean denatured alcohol, or ethyl alcohol that has been rendered unfit for beverage purposes by the addition of a denaturant. Chemically, an alcohol is a hydroxyl containing organic compound.

ALIPHATIC: A descriptive name applied to petroleum products derived from paraffin base crude oil. Gasoline, mineral spirits, naphtha and kerosene are typical, aliphatic or "straight chain" hydrocarbons, as distinguished from coal tar solvents or "cyclic hydrocarbons," such as benzol and toluol.

ALKYD: A synthetic resin that is made by the reaction of a polybasic acid, such as phthalic, maleic or succinic acid, with a polyhydric alcohol, such as glycerine. Vegetable oils, fatty acids and other resins are often used as modifying agents.

ALLIGATORING: The appearance of a paint, varnish or lacquer film that is cracked into large segments, resembling the hide of an alligator. This can be caused by heavy coats, by re-coating before the bottom coat is completely dry, by using thinners that evaporate too quickly or by applying a less elastic material over a more elastic one.

AMBER: A yellowish translucent resin formerly used in the manufacture of varnish but now very scarce and expensive. The term is also used to refer to the color of a resin or varnish.

AMORPHOUS: A term used to describe finely divided solid substances that are composed of individual particles without regular or definite crystalline form.

ANIMAL OIL: Oil obtained from animal tissues. The only drying or semi-drying animal oil is that obtained from certain species of fish.

ANHYDRIDE: The chemical term used to describe a compound, which becomes an organic acid upon the addition of water.

ANHYDROUS: A material containing no water, especially water of crystallization.

ANILINE COLORS: Colors made from aniline oil or coal tar derivatives, used in the manufacture of wood stains. Aniline dyes are made in different grades to be soluble in water, alcohol or hydrocarbons, and accordingly are called "water colors," "spirit colors" and "oil colors," respectively.

ANTI-CORROSIVE PAINT: This is a type of coating made with neutral or slightly alkaline pigments and a water resisting vehicle for use as a primer on steel and other metals to prevent or retard corrosion.

ANTI-FOULING PAINT: This is a type of coating that contains a toxic or poisonous substance to prevent the attachment of barnacles or other marine growth to the hull of ships or other objects submerged in water.

ANTI-OXIDANT: A material which, when added to a varnish or an oil, allows oxidation to progress to the desired stage and then retards subsequent oxidation. The anti-oxidant extends the life of the film.

ANTIQUE FINISH: A finish that is designed to give the appearance of age to an article. This is usually achieved by highlighting the parts that would normally receive the greatest wear or by darkening the unworn portions to simulate the accumulation of smoke and dirt.

ANTI-SKINNING AGENT: A material which, when added to a varnish or an oil, will prevent a skin of partially oxidized material from forming on the surface of the liquid while in the container or just before use.

APPLICATION: The principal methods of applying finishing materials are: brushing, spraying, dipping, roller coating, flowing, tumbling, squeezing, stenciling and printing. Applications can be described as follows: When the entire surface to be coated has been covered, an application has been made. When the same surface is re-coated, a second application has been made. Two or more applications may be considered as one coat if the normal drying time was not allowed between applications.

AROMATIC: An aromatic hydrocarbon is one derived from or characterized by the presence of the benzene nucleus, as contrasted to the aliphatic or "straight chain" hydrocarbons. Coal tar solvents, such as benzol (benzene), toluol (toluene), solvent naphtha and xylol (xylene) are some of the more familiar aromatic or "cyclic" solvents.

ASH: The non-combustible residue, which remains after a material is burned or heated at a very high temperature.

ASPHALTUM: A black or brown solid or semi-solid substance used in making asphaltum varnish or black Japan. Other names for similar materials are: "asphalt," "bitumen," "gilsonite," "pitch" and "tar."

ASPHALTUM VARNISH: A solution of asphaltum or pitch, prepared either by the hot or cold method, with or without the addition of drying oils, metallic dryers, other resins or volatile thinners, according to the method of manufacture and the use to which the finished product is to be put.

AZEOTROPE: A liquid mixture that is characterized by a constant boiling point that is lower or higher than any of the boiling points of the components. In rare instances the boiling point of the azeotrope can be intermediate to those of the individual components.

BACTERICIDE: A substance that inhibits the growth of mildew, mold or bacteria on the dried surface when added to varnish, oil, paint or enamel.

BAKING: The process of drying a coated material by the application of artificial heat. Forced drying is a mild form of baking, where temperatures of 100°F to 150°F are used as contrasted to 175°F to 400°F for baking.

BALD SPOT: An area or patch in a wrinkle finish film that has failed to wrinkle or that does not give the desired optical effect.

BALL MILL: A type of paint mill that employs steel balls inside of a revolving cylinder which, as they fall against each other and against the interior surface of the cylinder, break up the pigment aggregates, wet the individual pigment particles with the vehicle, and reduce the size of the pigment particles.

BARYTES: A natural, white, inert pigment, consisting chiefly of barium sulfate. Used extensively as an extender in paints and as a base for chemical colors.

BASE: A term having several meanings, according to the context:

1. In color manufacture, a material upon which organic dyes or colors are precipitated to form lakes or toners;

2. In coating materials manufacture, an original concentrated mixture of materials to which other ingredients are added to make a finished product;

3. Chemically, an alkaline material, capable of uniting with an acid to form a salt.

BATCH: The quantity produced in one complete operation.

BATU GUM: A semi-fossil damar resin imported from the East Indies.

BEESWAX: A wax secreted by honeybees for making their honeycomb. The melting point is about 150°F.

BINDER: The non-volatile, film-forming solid portion of the vehicle in a coating that binds the pigment particles together after the film is dry.

BITE: This occurs when a topcoat material partially dissolves or softens an underneath coat.

BITTY: Describes the appearance of a finishing material when small bits of skin or partially hardened material are present.

BLACKNESS: Description of the overtone of a black coating. For example, a material that absorbs all the light waves is "jet black"; if some blue

wavelengths are reflected, the material is a "blue black" coating, etc.

BLEACHING AGENT: A material that permanently lightens the color of the object on which it is used.

BLEEDING: Describes the process that occurs when the color of a stain or other coating material works up into succeeding coats, imparting to them a certain amount of color. Conversely, a non-bleeding color is one that is not soluble in materials applied over it.

BLENDING: Often used as a synonym for "mixing"(i.e., when two materials are blended together they are intimately mixed together). Also used to denote the gradual shading off from one color to another on a finished surface. Additionally, it is used to denote the partial mixture of two or more colors after application, so there is a gradual change from one color to another.

BLISTERING: The formation of bubbles or pimples on the surface of finished work. Anything that causes a gas or vapor to form under the film may cause blistering. For example, blistering can be caused by exposure to excessive heat, by grease or other volatile material under the finish, by moisture in the wood, or by the too frequent application of coats.

BLOOM: A bluish cast, which forms on the surface of a dried film of finishing material. This may be caused by a deposition of smoke or other foreign material from the atmosphere or by the softening of the film during rubbing operations, thus allowing traces of oil to remain on or in the surface which later sweats out to form a hazy film. "blooming" should not be used to describe the blushing of a lacquer film, as a bloom develops after the film is dry, whereas a blush develops during the drying operation.

BLUEING: Same as "BLOOM."

BLUSHING: The formation of a white or grayish cast in a spirit varnish, shellac or lacquer film during the drying period. This is caused by the partial or total precipitation of the solid ingredients as a result of condensed moisture in the film due to excessive humidity or by improper solvent balance, resulting in the true solvents evaporating first and the diluent or non-solvent portion evaporating later. The addition of a quantity of slow evaporating true solvent, known as a "blush retarder", usually prevents blushing.

BODY: Often used to describe the fullness or thickness of film on the work. Also used to describe the consistency or viscosity of a finishing material.

BODYING ACTION: The tendency of a finishing material to take on a thicker consistency upon standing in the package. The action is similar to a material "LIVERING" or "PUDDING," except that it does not proceed so far.

BODYING AGENT: A material added to a protective coating to increase the viscosity.

BODY ON WORK: The apparent thickness of a dried film of finishing material.

BOG OAK: Originally used to describe the black color produced in oak logs, which had lain buried for years in bogs. This color is imitated by the use of black stains to color lighter oak.

BOILING POINT: The temperature at which the vapor pressure of a liquid is equal to or very slightly greater than the atmospheric pressure of the environment. Practically, this is the temperature at which a liquid begins to boil.

BOND: The adhesion between two dissimilar materials.

BOND COAT: A coating used to improve the adherence of succeeding coats.

BOTTOM DRYING: The process in which a coating dries from the bottom up rather than the top down. Certain types of driers when used with certain oils tend to promote bottom drying.

BOXING: The intimate mixing of a finishing material by repeatedly pouring a portion of the original quantity into a second portion in a partially filled container.

BREAK: The flocculent material or "foots" that separate from an oil upon long standing or upon subjection to heat. Varnishes or lacquers are said to break when a portion of the solid ingredients separates from the liquid in the package. The term is also used to describe liquid separating from the pigment in a coat of paint soon after application.

BRIDGING: The ability of a finishing material to cover a crack, void or small gap without a break in the film, which usually results in an air pocket under the dried film.

BRIGHTNESS: This term describes:

1. The quantity of light emitted in a direction perpendicular to the surface;

2. The degree of apparent luster in a dried film;

3. The purity of a hue or freedom from darkness of color, such as a "bright green;"

4. The freedom of turbidity or suspended matter in a transparent material.

BRILLIANCE: The relative apparent purity of a color to the eye or the amount of glitter or surface reflection, such as "brilliant luster."

BRITTLENESS: The converse of toughness or tenacity. The brittleness of a dried film is evident through its tendency to crack or flake when bent or scratched.

BRUSHABILITY: The ease with which a material can be applied with a brush under practical conditions.

BRUSH MARKS: In coatings applied with a brush, these are marks of the brush that remain in the dried film. These marks can be caused by working the material after its solvents have evaporated to the point that the

flowing power has been lost or by defects in formulation that prevent the material from leveling out after it has been brushed.

BUBBLE TEST: A method of comparing the viscosity of a varnish or lacquer with another material of known viscosity or consistency. Generally, tubes of the exact internal diameter are filled with the two materials. The two tubes are held adjacent to each other in a vertical position and quickly inverted. The comparative rate with which the bubbles rise in the tubes is a rough measure of the relative viscosities, since the heavier consistency will result in the bubble rising more slowly in the inverted tube.

BUBBLING: The appearance of bubbles in a film when a material is being applied. This can be caused by any condition that causes air, vapors, or gases to be trapped in the film while it is soft, but after it has hardened sufficiently to prevent the gas from escaping.

BUFFER COAT: A coat of finishing material applied over another dried film to protect it from the solvent action of the succeeding coats.

BUILDING COAT: A finishing material, usually of a transparent nature, which is used over the sealer or color coats and under the finishing coats to increase the fullness of the finished work.

BULKING VALUE: The increased volume produced by grinding a quantity of pigment in a vehicle, usually expressed as the gallons added by grinding 100 pounds of pigment. The bulking value depends mostly upon the specific gravity of the pigment, although oil absorption, fineness of particle size and similar conditions have some effect on the results in actual practice.

BUNGHOLE: A round opening in a drum, barrel or cask that is closed with a tightly fitting plug or bung.

"Bunghole boiled" linseed oil is an oil that has a small amount of liquid drier added to it in order to make the drying properties closer to those of heat-treated oil.

BURN: A finishing material is described as "burned" when the dried film is rubbed too strenuously with insufficient lubricant, causing the finish to soften and stick to the rubbing pad.

BURNING IN: The process of repairing scratches and damaged spots in a finish by melting stick shellac or similar compounds into the defect by means of a heated knife.

CAKING: The formation of a "cake" of varnish or lacquer on the rubbing pad during the rubbing operation. This can be caused by improperly dried varnish, not enough lubricant, too much pressure on the rubbing pad, too fine or too hard felt in the pad, inferior pumice, dirt in the varnish surface and other similar causes.

CALCIUM CARBONATE: The chemical term for calcite or whiting. Obtained from natural deposits of chalk, calcite or dolomite, it is usually used as a white inert pigment.

CALCIUM SULPHATE: Chemically hydrated sulphate of calcium. A white inert pigment which almost completely loses its color and opacity when ground in oil.

CAMPHOR: A white translucent solid of a peculiar characteristic odor, which is derived from a species of laurel tree grown chiefly in Taiwan. In the early days of lacquer applications, it was used as a softener or plasticizer to give flexibility to a film. It is seldom used in present day lacquer manufacture due to its high volatility.

CANDELILLA WAX: A wax obtained from a small shrub in Mexico. It is a little softer than carnauba wax, having a melting point of about 156°F.

CARBON BLACK: A black pigment produced by the burning of natural gas with an insufficient supply of air that results in a finely divided form of carbon.

CARNAUBA WAX: One of the hardest waxes in use, having a melting point of about 185°F. It is obtained from the leaves of a species of palm grown in Brazil and is yellow in color.

CASE HARDENING: The condition that occurs when the upper portion of a finishing material dries hard and interior remains more or less soft and mushy rather than drying thoroughly throughout. This can be caused by drying the coating with the relative humidity of the atmosphere being too low. Case hardening may result in checking, cracking and alligatoring in the completely dried coating.

CASEIN: A non-crystalline solid obtained from milk, soya beans and similar sources. This is generally used in the paint industry as a binder in water paints.

CASTOR OIL: Pale yellowish or almost colorless, viscous, non-drying oil obtained from the seeds of the castor bean, used as a plasticizer in lacquers and similar products. When subjected to a special treatment to remove approximately 5% of the chemically combined water, it is converted into a drying oil known as dehydrated castor oil, which is used to a great extent in the manufacture of synthetic resin and varnishes.

CATALYST: A substance that in small quantities accelerates a chemical reaction by taking part in the reaction without being consumed. For example, driers are used as a catalyst in the oxidation of vegetable oils.

CELLULOSE: A natural carbohydrate high polymer that is the principal constituent of raw cotton and many other fibers obtained from the vegetable kingdom. This is generally used by the finishing material industry because nitrocellulose, ethylcellulose and other raw materials are obtained from it by complicated chemical reactions.

CELLULOSE NITRATE: See "NITROCELLULOSE."

CENTRIFUGE: A machine used for clarifying varnishes and similar materials by throwing out the solid particles, which have a higher specific gravity, through the action of centrifugal force.

CERESIN: A wax obtained from ozocerite and sometimes used as a substitute for beeswax. It has a melting point of about 180°F.

CHALK: A natural, soft, white calcium carbonate mineral usually of seashell origin, which after grinding and purifying is a source of whiting.

CHALKING: The condition that occurs when a loose powder, derived from the film itself, is formed on the surface of a dried film or just beneath the surface. This can be caused by a disintegration of the binder portion of the film. It may be detected by rubbing the film with the fingertip or with a piece of cloth of contrasting color.

CHASER: A mill used for grinding stiff pastes such as putty. Consists of a circular pan, which retains the mixture to be ground, and one or more heavy rollers, usually of stone, mounted at the end of a horizontal axis which permits them to revolve edgewise against the bottom of the pan as they progress around a vertical axis at the center of the pan.

CHECKING: A condition similar to alligatoring, except that the finish is broken into smaller segments. "Crowfoot checking" is the name given to the defect when the breaks in the film form a definite three-prong pattern with the breaks running outward from a central point of intersection. When the checks are generally arranged in parallel lines, the defect is known as "line checking." Irregular checks without a definite pattern are known as "irregular checking."

CHEMICALLY PURE: This describes a substance that is of a definite chemical composition; free from adulteration, extenders or diluents.

CHINA CLAY: A highly refractory inert pigment, consisting essentially of aluminum silicate that has a high fusion point and high lubricity. Also known as kaolin.

CHINAWOOD OIL: See "TUNG OIL."

CHIPPING: A condition occurring when a dried film of finishing material separates from the surface underneath and forms flakes or chips. Usually caused by insufficient elasticity or improper adhesion to the base material.

CHLORINATED RUBBER: A synthetic resin made by chlorinating rubber under specified conditions.

CISSING: Another term for the defect known as "CRAWLING."

CLEAR TONE: A transparent finish with no sign of turbidity or muddiness.

CLOSE DRYING: A descriptor for a coating that shows little fullness or body prior to a rubbing operation. The rubbing operation often brings out the true fullness of the dried film.

CLOUDING: Similar to "BLOOMING." A loss of luster with the accompanying appearance of a cloudy film on the surface of a coated material.

CLOUDY: This describes a finishing material that is turbid due to the suspension of finely divided solid particles. A similar appearance in the dried film is known as cloudiness.

COAGULATE: The irreversible combination or aggregation of semisolid particles that changes a liquid to a thickened, jelly-like or curdled, soft mass.

COALESCING AID: A solvent that causes the individual polymer molecules in the resin to unite into one unifed body, thereby giving a continuous film or coating.

COAL OIL: The crude oil obtained from the destructive distillation of bituminous coal.

COAL TAR: A black liquid consisting of a complex mixture of hydrocarbons, obtained from coal during its conversion to coke. Coal tar is the basic raw material for many of the solvents, dyes, chemicals and resins used in the coating industry.

COAL TAR RESINS: Synthetic resins produced from coal tar.

COAT: When used as a verb, "coat" means to cover or apply; as a noun, the word signifies the amount of finishing material applied to a surface during one or more applications without a drying period between applications. See "HEAVY COAT," "THIN COAT" and "WASH COAT."

COEFFICIENT OF EXPANSION: The ratio of the length of a solid object or volume of a gas or liquid at two different temperatures per degree of temperature.

COHESION: The force that holds adjacent particles of a single mass together.

COLD CHECKING: Checks or cracks that appear in the dried film when it is subjected to repeated sudden and appreciable reductions in temperature. Can be caused by the force of contraction exceeding the cohesion of the film.

COLD COLOR: A color is said to be "cold" when it has a bluish or greenish tone or is not suggestive of warmth.

COLLOID: An insoluble substance that is divided so finely in a non-solvent substance that it remains in permanent suspension and cannot be filtered out by usual means. Colloidal, adj.

COLLOID MILL: A machine consisting of a high rotor and stator, which produces air emulsifying action between the opposing faces. Used to homogenize a substance.

COLOPHONY: See "ROSIN."

COLOR: The visual perception produced by various wavelengths of light reaching the retina of the eye that allows one to differentiate between otherwise identical objects. An object is black when all wavelengths of light are absorbed and none are reflected; it is green when only the wavelengths producing the sensation of green are reflected; and so on. Color is divided into three main parts:

1. hue is that quality which produces the color sensation, that is red, blue, green, etc.

2. tint is the amount of color present, such as a pale tint of blue.

3. shade expresses the purity or degree of color, such as a dark shade of red.

The term color is also used to denote the pigments used to produce colored paints or to express the act of applying color to an object.

COLOR CHIP: A small piece of paper, celluloid or other material, coated with finishing materials and used as a color sample.

COLOR COATS: Those coats of finishing material that give color to the finish.

COLOR FLOAT: When one or more colors that are different from the original color appear on the surface after the finishing material has been applied. This condition can be caused by imperfect wetting of the pigment particles, too large a difference in specific gravity of the individual pigments, imperfect incorporation of the pigments, or the use of tinting colors ground in a different liquid than that composing the main body of the material.

COLORIMETER: An instrument for measuring the type and quality of color by comparison with standards, such as measurement of the reflected light waves or other means.

COLORING MATTER: Any dye or pigment that is used to impart color to a finish.

COLOR STANDARDS: A set of standardized color samples for comparing and classifying the color of oils, resins, varnishes, lacquers, paints or other finishing materials or their ingredients.

COLOR STRENGTH: The intensity of color exhibited by a pigment. It is also a way of expressing a pigment's power to alter the tint or shade of another color to which it may be added.

COLOR VARNISH: A semi-transparent or translucent varnish containing colored pigments or dyes that are not sufficient in amount to be an opaque or solid covering.

COMMERCIALLY PURE: A loosely applied term used to define the purity of a substance or the basis of acceptable commercial standards.

COMPATIBILITY: The ability of two or more materials to mix with each other without separation or chemical reaction.

COMPLEMENTARY COLORS: Colors that lie opposite one another on the color wheel. The mixture of any two primary colors forms the complement of the third primary color. For example, green, the mixture of blue and yellow, is the complement of red. Complementary colors in pigments accentuate each other when placed side by side but turn into muddy or subdued colors when mixed.

CONDENSATE: The liquid that is obtained by cooling the vapors of a material that is being distilled.

CONGO RESIN: A fossil-copal resin, found in Africa. One of the most widely used natural resins for manufacturing varnish.

CONSISTENCY: The relative limpidity, stiffness or resistance to agitation or resistance to deformation of a coating material. See "BODY."

COPAL: A group of natural resins from Africa, New Zealand, East Indies and South America which consist of the hardened exudations of various trees.

CORE: The central piece of wood used in the construction of plywood. Its grain is usually at right angles to the grain of the adjacent plies.

CORROSION: The electrochemical degradation of metal or alloys due to reaction with their environment, which is accelerated by the presence of acids or bases. A paint or coating is often applied to a surface to protect it from corrosion, oxidation or other types of deterioration.

COTTON LINTERS: The short fibers of cotton that adhere to the cotton seed when the cotton is ginned. These short fibers are cut from the seed with special machinery and used in the manufacture of nitrocellulose and for other special purposes.

COUMARONE-INDENE RESINS: A class of synthetic resins derived from tar.

COVERING POWER: The capacity of any pigmented finishing material to hide the color of the material beneath it and to produce a uniform, opaque surface when applied in one coat. See "HIDING POWER."

CRACKER JACK RUB: Name given to the process of slightly rubbing a dried film just enough to dull the luster.

CRACKING: An intensified or advanced stage of checking or crazing, whereby the breaks in the film are so deep that the underlying surface is exposed.

CRACKLE FINISH: A novelty finish, usually produced by applying a heavily pigmented, high shrink topcoat of lacquer over a more elastic bottom coat of lacquer. The topcoat cracks and pulls apart in a more or less definite pattern exposing the underlying coat in the cracks.

CRAWLING: Action of a finishing material that does not remain spread in a continuous uniform coat. May be due to excessive viscosity, high surface tension, low temperatures, glossy surface of undercoat, or to the presence of grease, oil or other foreign matter on the undercoat.

CRAZING: The appearance of minute, interlacing cracks or checks on the surface of a dried film or finishing material.

CRINKLING: Descriptive of the shriveling or crinkling of the fatty or thick edge of the dried film of finishing material.

CRIPPLES: Finished work that does not pass inspection due to imperfections in the finish, and consequently must be touched up or refinished.

CROCKING: Removal of dye or pigment from the surface of a coating by rubbing or attrition.

CROW FOOTING: A form of crystallization wherein the lines come together at a central point.

CRUMBLING: This occurs when a material does not contain enough binder to hold it together in a plastic mass. This term is used mostly when speaking of filters and other heavily pigmented goods.

CRYPTOMETER: A device for evaluating the hiding power of paints.

CRYSTALLIZING: The formation of a rough, crystalline surface on varnishes or other materials upon drying rather than a clear, smooth surface. This can be caused by improper ventilation, by gas fumes or by cold draughts during the drying process, or by improper formulation and manufacture of the material.

CUT: The pounds of resin added to each gallon of solvent. For instance a four-pound cut of shellac contains four pounds of dry shellac dissolved in one gallon of alcohol. This results in a solution that contains 2.86 pounds of shellac per gallon of solution. A cut is also a fraction obtained by distillation. The word is also used to designate the reduction or thinning of one liquid material with another.

CUTTING UP: Describes the process that takes place when one coating softens another one that was apparently hard and dry before application of the second coat. This can be caused by the solvents in the topcoat softening and partially dissolving the bottom coat, improper drying or improper formulation.

CYCLE: Any periodic repetition of a process. For example, the completion of all the steps in a process of testing to the point where the steps start to be repeated is one cycle of testing.

DAMAR: A resin, usually of modern origin, obtained from various trees in Australia, New Zealand, the East Indies and South America. It is usually very pale in color and used in varnishes and lacquers.

DARK: As used in the coatings industry, "dark" is a comparative adjective to describe those colors approaching blackness as opposed to "light" colors which approach whiteness or "deep" colors which are intense or strong with no apparent presence of black.

DEAD FLAT: Description of a film that has no apparent luster.

DEADENING: This term refers to a finish that loses its luster and appears dead or dull after aging or when exposed to outside weather conditions.

DECALCOMANIA (Decal): The process of transferring pictures, designs or decorations from specially prepared paper onto other surfaces. The prepared paper designs are also known as decalcomanias or "decals." Some decals carry their own adhesive next to the paper on which they are printed, the designs being slipped from the moistened paper, face up, onto the work. Other decals call for a thin coat of varnish or cement to be applied to the surface to be decorated, the design, with the dry paper still attached, being laid face down against the cement; then the paper backing is moistened and removed. Some decals require a transparent coat to be applied over them; others have the finishing coat already on the design.

DEEP: Term used to describe both a finish and a color. In a finish, this term is used when it appears to have great thickness. For colors, this term is used when it is intense or strong with no apparent presence of black.

DEHYDRATE: Process of removing water or moisture.

DEHYDRATED OIL: An oil, usually of a semi-drying or non-drying type, which has been chemically treated to convert it into a drying oil, through the rearrangement of the atoms in the molecule to form new double bonds between the carbon atoms. Water is split from the molecule during the process, hence the term "dehydrated."

DENATURANT: A material that is added to another substance to alter its effectiveness for certain purposes. For example, denatured alcohol is ethyl alcohol containing small quantities of other materials, which render it unfit for beverage purposes. Generally, most alcohol denaturants are poisonous.

DEMONSTRATOR: A person who instructs customers or their employees in the methods of applying finishing materials properly, usually by actually applying the material in the presence of the persons being instructed.

DENSITY: Mass per unit volume, usually expressed as grams per cubic centimeter for solids and liquids and as grams per liter for gases. See "SPECIFIC GRAVITY" and "WEIGHT PER VOLUME." Density is also used to denote strength of color, freedom and voids or to express solidity.

DEPTH OF FINISH: The apparent thickness of the dried film of finishing material due to its smoothness, clarity, brilliance and luster, as well as the actual film thickness.

DESICCATE: The drying of a material by transferring moisture from it to another material that has a higher affinity for the water vapor, usually by placing the two materials in close proximity to each other with the exclusion of air.

DESTRUCTIVE DISTILLATION: The decomposition of an organic compound by the application of temperatures so high as to cause the vapors that are driven off to be of a different chemical composition than was present in the original material.

DIFFUSED LIGHT: Scattered or dispersed light of a uniform degree of intensity, such as through ground glass.

DILUENT: A non-solvent liquid that is blended with an active solvent to obtain certain properties, such as reduced viscosity, in a finishing material. A diluent for nitrocellulose solutions may be a solvent for resin solutions and, therefore, is valuable in providing miscibility and stability of the two solutions when combined with each other.

DILUTION RATIO: A measure of the amount of non-solvent or diluent that can be added to a solution before the formulation performance is negatively affected, such as by precipitation of solids.

DIPENTINE: A high boiling solvent for resins derived from the distillation of the sap of pine trees.

DIPPING: The process of applying finishing materials by immersing the object to be coated into the coating.

DIRTY: Term to describe coatings when they are not clean or contain foreign matter, usually of a finely divided solid nature. This term can also be applied to describing colors whereby a "dirty color" is one that is muddy or not clear and bright.

DISINTEGRATION: To break apart, pulverize or destroy by separation into small particles. Also a term to describe the complete break-down of the dried film of finishing material.

DISPERSED: Finely divided or colloidal in nature.

DISTEMPER: A water-based paint containing pigments that are tempered or mixed with a small amount of binding substance.

DISTENSIBILITY: The ability of a material to dilate, expand, swell or stretch when force is applied. See "ELASTICITY."

DISTILLATE: The product produced by cooling the vapors of a material that has been heated sufficiently to cause a portion of it to vaporize.

DISTILLATION: The act of applying heat to drive off certain portions of a material by vaporization. This is frequently a method used to separate two or more materials with different boiling points.

DOCTORING: The act of changing the properties of a finishing material by incorporating small amounts of modifying agents. See "DOPING" also.

DOCTOR TEST: A test for determining the presence of sulphur compounds, which can negatively affect the odor of a coating, in petroleum thinners. This test is dependant upon the reaction of sulphur compounds with lead compounds to produce a darkening effect.

DOMINANT COLOR: The predominant or outstanding color in a color scheme.

DOPE: A solution of nitrocellulose or other cellulose derivatives in suitable solvents, used for special purposes such as coating leather, fabrics, etc. to render them smooth, rigid and non-porous.

DOPING: The act of applying dope to the surface being coated. The term also refers to changing the properties of a finished material by the incorporation of small amounts of modifying agents. See "DOCTORING."

DORMANT: Not active. See "QUIESCENT."

DRAUGHT TEST: A test applied to finishing materials to determine their ability to withstand draughts of air during the drying stages without producing a dull or crystallized dried film.

DRAW DOWN: A test applied to determine the color tone or opacity of a finishing material, wherein a small quantity is spread out in a thin layer on white paper.

DRIER: A catalytic material that improves the drying or hardening properties of oils or varnishes when added in small amounts.

DRIPS: The small drops of material that collect on the edge of dipped work.

DROP BLACK: A black pigment made by calcining animal bones. Also known as "bone black" or "animal charcoal."

DRY: Free from liquid, containing no water. Raw materials, such as pigments, are dry when they contain no water. Finishing materials are called "dry" when they have solidified or are no longer in a liquid state.

DRY COLOR: A colored pigment, usually with good tinting strength suitable for grinding into varnishes, oils or lacquer solutions for producing colored finishes. See "DRIERS."

DRY ICE: Solidified carbon dioxide. A white ice-like material that changes directly into a gas without going through a liquid phase (sublimes) at temperatures above its melting point (-109.3 F).

DRY DUST FREE: The stage of solidification of an applied film or finishing material when particles of dust that settle upon the surface do not become imbedded in the film.

DRY HARD: The stage of solidification of an applied film of finishing material when it has reached its maximum degree of hardness.

DRYING: The act of changing from a liquid film to a solid film due to the evaporation of solvents, oxidation or polymerization or by a combination of these phenomena.

DRYING OILS: Organic, oily liquids that have the property of hardening or solidifying when applied as a thin film and exposed to normal atmospheric conditions.

DRYING SALTS: Compounds of drying metals, which react with the acid constituents of oil or varnish to produce driers.

DRYING TIME: The time required for an applied film of a coating material to reach the desired stage of hardness or non-stickiness. Common names for the various stages of drying are: "dust free," "to touch," "tack free," "to handle," "hard," "to rub," and "to pack."

DRY TACK FREE: The stage of solidification of an applied film of finishing material when it does not feel sticky or tacky when the finger is drawn lightly across the film in a quick continuous motion.

DRY TO HANDLE: The stage of solidification of a film of finishing material when the coated article may

be picked up or moved without the finish coming off on the hands or being seriously damaged.

DRY TO PACK: The stage of solidification of an applied film of finishing material when the coated article can be packaged for shipment.

DRY TO RUB: The stage of solidification of an applied film of finishing material when it can be rubbed with an abrasive and a lubricant without softening appreciably or "picking up" on the rubbing pad.

DRY TO SAND: The stage of solidification of an applied film of finishing material when it can be sanded without undue softening, sticking or clogging of the sand paper.

DRY TO TOUCH: The stage of drying of a film of finishing material when it has solidified sufficiently that it can be touched lightly without any of the finishing material adhering to the fingers.

DULL: Lacking brightness, clearness or luster.

DURABILITY: The ability of a finishing material to withstand the conditions or destructive agents that it comes in contact with through actual usage, without an appreciable change in appearance or other important properties.

DUST: Small particles of solid matter. Also a grading or size of natural resin.

DUST FREE: The stage of solidification of an applied film of finishing material when dust that settles on the coated surface does not penetrate or stick to the film.

DRYING AWAY: The loss of apparent film thickness in a dried coating. See "DEADENING."

EARTH PIGMENTS: Colored pigments mined directly from the earth. They are also known as natural or mineral pigments. These pigments are quite stable and not easily affected by alkali, heat, light or moisture. They are usually of a yellow, brown or red hue. Inert natural pigments are not usually classed as earth pigments.

EFFERVESCENCE: The phenomenon that occurs when a liquid froths or bubbles due to the escape of gas not formed by boiling.

EFFLORESCE: To form or become covered with a white powdery crust due to the evaporation of water from a solution, such as is often seen on interior and exterior masonry walls, when evaporation of water leaves white crystals of various salts behind on the masonry.

EGG SHELL: An indefinite term used to describe the appearance of a film that has little or no luster. The term is also used to describe an off-white color.

ELASTICITY: The property of a film that allows it to stretch or otherwise change size or shape and return to its original condition without breaking or rupturing. This term should not be confused with "toughness," "tensile strength" or "elongation," which have different meanings.

ELASTIC LIMIT: An expression of the maximum stress or distorting force that a material can withstand and still be able to return to its original length, size or shape after the force is removed. When the applied force is sufficient to stretch the material to a point where it does not return to its normal or original condition, the elastic limit has been exceeded.

ELECTRICAL RESISTANCE: The potential for retaining an electrical charge. Measured in megaohms, this is a measure of resistance to flow of electrical current.

ELECTROLYSIS: Chemical decomposition by the action of an electric current.

ELECTROSTATIC SPRAY: The process of applying an electrostatic charge to a coating while applying an opposite charge to the substrate.

ELEMI GUM: An aromatic, balsamic, resinous gum of modern origin obtained from a tree in the Philippines. Used to some extent in the manufacture of lacquer for its plastic and adhesive properties.

EMPIRICAL: A method or formula arrived at by a "trial and error" procedure rather than by a consideration of theoretical or fundamental factors.

EMULSIFIERS: Surface-active agents used to form a stable finished product by forming protective colloids with components that otherwise would separate.

EMULSION: A suspension of fine particles of a liquid within another liquid that is not ordinarily miscible with the first liquid. An emulsifying or dispersing agent is usually used to promote this intimate and more or less permanent intermixing of the dissimilar liquids.

ENAMEL: A broad classification of free flowing pigmented finishing materials that dry to a smooth, hard, glossy or semi-glossy finish. Generally the liquid portion consists of varnish or lacquer and the pigment portion is ground to a very small particle size. Paints, on the other hand, usually have raw or treated oils as the vehicle, and the pigments may not be so finely ground.

EROSION: That phenomenon found in dried films of finishing material wherein the top surface wears away under exterior exposure or other climatic conditions to expose the underneath surface. This usually occurs as a result of chalking of the film.

ESSENTIAL OIL: An oil that has an essence or odor. An essential oil is distinguished from a fatty oil by its volatility, odor and non-greasiness.

ESTER: A compound that is formed when an organic radical replaces a hydrogen ion of an acid. The usual reaction is that of an acid (organic or inorganic) with an alcohol or other organic compound rich in OH groups.

ESTER GUM: A modified natural resin produced by the reaction of an alcohol such as glycerine with the acids in a natural resin, such as rosin. Ester gum is very insoluble in water and, therefore, adds properties to a varnish that cannot be obtained with natural rosin.

ESTERIFICATION: The formation of an ester.

ETHER: A class of organic compound in which an oxygen atom is interposed between two carbon atoms (organic groups) in the molecular structure, giving the generic formula ROR. The term "ether" is often used synonymously with "ethyl ether" and is the legal label name for it.

EVAPORATE: The act of volatilization or transforming from the liquid to vapor phase. Driving off a liquid by the application of heat, vacuum, or similar conditions.

EVAPORATION RATE: The rate at which a specific material will volatilize, or convert from the liquid to gas phase. In North America all evaporation rates are given in comparison to that of n-butyl acetate (ER=1.0). One cc of n-butyl acetate under normal air flow and 0-5% relative humidity will evaporate in 468 seconds.

EXPOSURE TEST: This is a preliminary and practical method of evaluating the durability of a protective coating by subjecting it to conditions similar to those which will be present in actual usage.

EXTENDER: An inert pigment that is used to increase the bulk of a paint or enamel or to dilute the color strength of a pigment.

EXTRACT: A product derived from vegetable matter by the application of solvents, heat or pressure to separate it from the other constituent parts.

EXUDATE: Any material, usually of a resinous or balsamic nature, that filters through the walls of living vegetable cells and accumulates on the exterior tissues.

FADING: The loss of color due to exposure to light, heat or other destructive agent.

FAILED: Description of a finishing material that performed below expectations. For example, when a finishing material, either in the liquid or dried film state, does not pass a given test, it is said to have "failed" in that respect.

FALSE BODY: An abnormally heavy consistency that gives the false impression that the material contains a high solid content and, therefore, will deposit a heavy film.

FAST TO LIGHT: A color that does not fade or change appreciably in hue, tint or tone upon exposure to light over a considerable period of time is fast to light.

FAT: A glyceryl ester of a carboxylic acid of animal or vegetable origin.

FATTY: Description of a material that has a consistency of solidified fat or butter, which is often caused by age.

FATTY ACID: An organic acid derived from fats or oils or produced by syntheses from hydrocarbons. The three principal fatty acids are palmitic, stearic and oleic acid.

FATTY EDGE: This is the thick edge that is sometimes found on heavily coated work, especially dipped work, which results in a rounded thicker film along the edges of the work.

FEATHER EDGE: The tapering of the edge of a film of dried material caused by the method of application, or by sanding or rubbing the dried film. The tapering is evidenced by a gradual progression of the film thickness from little or no material at the edge to a normal coating at the center.

FEATHERING: The formation of fine shreds of precipitated solids in a varnish or lacquer when excessively thinned with a solvent.

FILLER: A finishing material, usually containing considerable quantities of pigment, that is used to build up or fill depressions and imperfections in the surface.

FILM SCRAP: Reclaimed photographic film from which the emulsion has been removed. This is used as a replacement for virgin nitrocellulose in the manufacture of lacquers and sealers.

FILTER: To remove solid particles from a liquid by passing the liquid through a paper, cloth or other membrane containing openings that are too small to allow the solid particles to pass through.

FILTER AID: An extraneous substance added to a liquid to facilitate the removal of suspended matter during filtration.

FILTER CAKE: A name for the solid matter that is built up on the filtering membrane during the filtration process.

FILTER PRESS: A machine that is constructed so as to form hollow chambers when filter cloth or filter paper is placed between the plates. The plates are held together by strong pressure. The suspended particles in a liquid are removed and deposited in the chambers when the material is forced through the filtering medium by a pump.

FINENESS: The degree of subdivision of pigments or the extent to which they are dispersed in the vehicle upon grinding.

FINGER NAIL TEST: A physical test upon the dried film of a finishing material to denote the ease with which it can be marred, scratched, flaked or broken. The test is often performed by picking at the finish with the edge of the nail of the thumb or index finger.

FIRE CRACKED: The appearance of a dried film that contains delicate, intricate, and almost invisible surface cracks, such as might be caused by exposure to heat.

FIRST COATER: A finishing material used as the initial film-forming coat.

FISH OIL: A drying or semi-drying oil obtained from the bodies of fish.

FIXATIVE: A material that is used to make another substance or color permanent. For example, a dye mordant is sometimes called a fixative. This term is also used to describe clear liquids that are applied to pastel paintings or charcoal drawings to prevent the surface from smudging or rubbing off.

FIXED OIL: A non-volatile, stable fat or oil, as contrasted to essential or volatile oils. A saturated oil is non-drying.

FLAKING: The detachment of small pieces of dried film from the undercoat.

FLASH BAKE: This term was originally used to describe a process of baking which ignited the solvents in a film of coating material resulting in deposition of the solid residue on the surface. Now the term is used to indicate a rapid baking process, usually at high temperature.

FLASH POINT: Lowest temperature at which a flammable liquid gives off sufficient vapor to form an ignitable mixture with air near its surface or within a vessel.

FLAT: When referring to a coating, this means having no gloss or luster.

FLATTING AGENT: A material added to a normally glossy coating to reduce the luster and produce a flat appearance.

FLOATING: See "COLOR FLOAT."

FLOCK: The finely divided, soft, fluffy fibers used to produce a "flock finish," which consists of an adhesive applied to the surface to be coated and into which the fibers are blown or sifted, before it is dry in order to produce the appearance of felt or a pile fabric.

FLOOD: The excessive application of considerably more finishing material than is necessary to secure desired results.

FLOODING: Describes the change in color of a pigmented finishing material from that exhibited at the time of application. Flooding is due to a uniform color float where one tone of the color becomes stronger as the film dries.

FLOW: The characteristic of a coating that allows it to level or spread into a smooth film of uniform thickness before hardening.

FLOW COAT: A coat of finishing material applied to a vertical surface in an excessive amount so that the surplus flows down over the surface and drips off the bottom edge.

FLUID: Any material that is capable of flowing or changing its shape under normal conditions.

FLUSH COLORS: These are chemically precipitated colors in paste form that are capable of being incorporated directly into oil or varnish without being ground. In the flushing process the oil replaces the water around the pigment particles and the water, being lighter than oil, rises to the top of the mixture, where it can be removed.

FOOTS: The finely divided, extraneous, gelatinous matter that separates from the oils when aged in an undisturbed condition.

FORD CUP: A type of viscometer originally used by the Ford Motor Company, but now extensively used in testing laboratories. It consists of a cup, with an overflow device to insure a standardized volume, in the bottom of which is a standardized orifice. The number of seconds required for the cup to empty itself at a standardized temperature gives a numerical expression of the viscosity of the material.

FOSSIL RESINS: Those natural resins which derive their hardness and desirable characteristics from aging in the ground.

FRENCH POLISH: An old method of finishing wood, consisting of the application of repeated coats of low solids shellac solution with a soft cloth pad on which a few drops of oil has been placed. The shellac solution is applied sparingly with a rotary motion of the pad and the wiping action is repeated until the film is nearly dry. The finish is allowed to harden between applications.

FROSTING: See "CRYSTALLIZING."

FUGITIVE: Lacking in permanence of color upon exposure to light.

FULLER'S EARTH: A type of clay used to aid in the bleaching and deodorizing of oils and other liquids.

FULLNESS: A term denoting the apparent body or depth of finish on the work.

FUME: The finely divided particles of a solid material that are suspended temporarily in air during a spraying operation.

FUNGICIDE: A material that reduces or prevents the growth of fungus on the surface to which it has been applied. This is often added to finishing materials to prevent the formation of molds and mildew under humid conditions.

GALLON: A standard unit of volume measurement. It is 231 cubic inches.

GAS BLACK: A carbon black pigment produced by burning natural gas in an insufficient supply of air.

GAS CHECKING: The fine checking, wrinkling or frosting of a coating during the drying process, especially when gas or other impurities are in the air. Also called "Gas Crazing."

GEL: A term used to describe an over polymerized material.

GLAZE: A term used to describe several types of finishing materials:

1. Glazing putty is a creamy consistency surfacing material, usually applied with a knife to fill imperfections in the surface.

2. Glazing stain is pigmented stain applied over a stained, filled or painted surface to soften or blend the original color without obscuring it.

3. A glaze coat of a clear nature is sometimes applied over painted wall surfaces to give them a peculiar appearance and to permit easier cleaning when the walls become soiled.

GLOSS: Describes the luster, shininess or reflecting ability of a surface.

GLOSSING UP: The increase of luster in a rubbed film through friction in use. Also describes the increase in luster of a flat varnish in the package through a decrease in the flattening effect of the flatting agent.

GLOSS METER: An instrument for measuring the luster or gloss of a finished surface.

GLOSS OIL: A brittle varnish consisting essentially of a solution of treated rosin in petroleum thinners and containing no oil.

GOOSE FLESH: The appearance of a dried film that has small pimple-like elevations over the surface.

GRAININESS: The appearance of small grain-like particles in a finishing material or in the dried film of a finishing material.

GRAINING INK: A colored ink or paint material used over a colored ground color to produce an imitation of the grain of wood, marble or other substances.

GRAIN RAISING: The roughness of wood caused by the swelling and stiffening of the short, broken fibers on the surface.

GRAIN SHOWING: This occurs when a pigmented, opaque finish fails to completely obscure the grain of the wood over which it is applied.

GRAVITY: See "SPECIFIC GRAVITY."

GRAYNESS: A hazy, dull appearance in a rubbed film, usually caused by the finish being oil rubbed too soon after application. This condition can be avoided by allowing more drying time.

GRAY PORES: This occurs when the pores of the wood have a bleached, yellowish or grayish look after the finishing coats are applied. Caused by improper formulation of the filler or top coats or by the use of a filler that is too weak in color strength for the stain color.

GREENISH CAST: Describes the appearance of a finish wherein a muddy greenish tone is observed, especially when viewed in a strong light.

GREEN MATERIAL: A freshly made finishing material that has not been allowed to age sufficiently before being used.

GRINDING: The process of incorporating pigments into oils, varnishes, or other vehicles by passing the mixture of pigments and vehicle between two closely adjacent moving surfaces or by similar means to ensure complete wetting of the pigment particles and their uniform dispersal throughout the vehicle.

GRITTINESS: See "GRAININESS."

GROUND COAT: The coat of colored material, (which is usually opaque), applied before the graining ink, in producing imitation wood or marble effects, or before the glazing coat in obtaining antique glazed effects.

GUIDE COAT: A coat of different color than the other surfacing coats which serves as a guide in rubbing or sanding operations to help obtain a smooth surface without sanding through to the underlying wood or metal.

GUM: The resinous material exuded by trees or plants. Strictly speaking a gum is water-soluble, but this term is widely used in the varnish industry to designate those natural resins usually not water-soluble that are obtained from trees.

GUM SPIRITS: Turpentine produced by distilling the sap of pine trees.

GUM TURPENTINE: Same as "gum spirits."

GUN COTTON: A form of highly nitrated cellulose used in high explosives. The lower nitrated grades, known as nitrocellulose, are more readily soluble in lacquer solvents than is gun cotton.

GYPSUM: A natural inert pigment consisting essentially of a hydrated form of calcium sulphate. When heated to remove a part of the water of hydration, "plaster of Paris" is formed. Further heating to remove all of the water of hydration produces calcium sulphate, which does not react with water to form a solid "set material" as does plaster of Paris.

HAIR LINES: Fine lines or incipient checks in the dried surface of finishing materials. Often caused by sudden temperature changes.

HANSEN SOLUBILITY PARAMETERS: An indicator of the preferences for hydrogen bonding of solvents used to predict the solubility of polymers in solvents.

HARDENED ROSIN: Rosin that has been partially neutralized by being cooked with lime.

HARD GUMS: The fossilized resins or "copals" that were exuded from living plants centuries ago.

HARDNESS: That property of a dried film of finishing material that causes it to withstand denting or being marked when pressure is exerted on its surface by an outside object or force.

HAZE: The dullness of a surface that prevents a clear reflection of light. This can be caused by partial precipitation of one or more ingredients during the drying period. Haze can often be removed by polishing or cleaning.

HEAT CONVERTIBLE RESIN: A resin that can be transformed into an insoluble mass by the application of heat as contrasted to one that is softened by heat.

HEAVING: The slight swelling or raising of the surface caused by partial softening of the undercoat by the solvents in the succeeding coat.

HIDING POWER: The ability of a colored finishing material to obscure or cover up the surface that has been coated with it.

HEAVY BODY: A general term denoting a relatively high viscosity liquid state or the deposition of a film of great thickness before drying.

HEAVY COAT: A generous or excessive coat of finishing material.

HIGH LIGHT: The lighter colored or more transparent portions of a finish. For example, this can be found on furniture that has been purposely made uneven in color to simulate worn spots caused by frequent use over a period of

years. This effect is usually obtained by wiping off a portion of the stain while wet or by using steel wool or sandpaper after it is dry.

HIGH SOLIDS: A general term used to denote the presence of a higher than average percentage of solid ingredients.

HOLIDAY: A skipped or uncoated portion that was unintentionally missed when the finishing material was applied.

HUE: The quality of a color responsible for its name by which it is distinguished from other colors such as red, green or blue.

HUMIDITY: The amount of water vapor in the air. Also see "RELATIVE HUMIDITY."

HYDROMETER: An instrument for measuring the specific gravity of a liquid. This usually consists of a long glass spindle attached to a bulb that is weighted at one end to cause it to stand upright in the liquid. The distance to which the spindle sinks in the liquid is a measure of the density of the liquid.

HYGROMETER: An instrument for measuring the degree of humidity or relative humidity of the atmosphere.

HYGROSCOPIC: A descriptive adjective applied to materials that readily absorb and retain moisture from the atmosphere.

IGNITION TEST: A test to determine the amount of non-combustible and non-volatile material in a sample. Generally, the sample is weighed, ignited, and allowed to burn until it extinguishes itself. It is weighed again and the percentage of non-combustible material calculated.

IMMISCIBLE: Not capable of being mixed together intimately without developing cloudiness or turbidity. This term is usually applied to liquids.

IMPACT TEST: A test for determining the resistance to shattering of a dried film by dropping a weight onto the finish.

IMPERIAL GALLON: The British and Canadian unit of volume measurement. It is the volume of 10 pounds of water or 277.42 cubic inches as contrasted to 8.33 pounds of water or 231 cubic inches in the U.S. Standard gallon.

INCOMPATIBLE: For coatings, this denotes items that are not capable of being mixed together without impairing the original properties of the materials being mixed. This usually results in a separation of solid particles, cloudiness or turbidity.

INDIA INK: Black, waterproof ink, consisting of a dispersion of carbon black in water.

INDICATOR: A material that changes color or another property as the conditions to which it is exposed are changed. Certain indicators can be used to indicate the presence, absence or concentration of alkali, acid or of other substances.

INERTS: Those inactive, extender pigments which have little or no hiding or tinting properties when wet with oil, varnish or similar materials, and which are chemically stable or inert.

INFRARED: A group of long wavelength rays generated by heat from a hot body. They have the property of raising the temperature of the receiving body. These rays are utilized to accelerate the baking of finishing materials by use of infrared lamps or infrared burners, through the development of heat in the surface to which the coating has been applied.

INHIBITOR: An agent that arrests a chemical reaction. In the coatings industry, an inhibitor is usually a pigment or other agent that retards the formation of rust.

INTENSITY: Description of the purity or degree of hue as seen by the eye.

IODINE VALUE: A numerical method of expressing the degree of unsaturation in organic compounds, such as fatty acids or vegetable oils. This can be related to the drying properties of the coating. Iodine value is expressed as the number of centigrams of iodine reacting with one gram of the substance being tested.

IRIDESCENT: Having the property of exhibiting prismatic colors or varied colors.

IRON BLACK: The black oxide of iron. Also known as magnetic iron oxide.

IRON BLUE: Any blue pigment that depends upon its iron content for its blue color. This is sometimes called Prussian blue.

IRON MILL: A paint mill consisting of a corrugated steel disc that revolves tightly against a stationary steel base. As the pigment particles pass between these moving steel parts, they are subdivided and wet by the grinding vehicle.

IRON OXIDE: A red, brown or yellow pigment consisting of the oxides of iron.

IVORY BLACK: A high grade of drop black, or bone black formerly made by charring ivory, and more recently made by charring animal bones.

JAPAN: A varnish yielding a hard, glossy, dark colored film.

JAPAN BLACK: A black baking varnish made from an asphaltic base in conjunction with oils, dryers, thinners and, sometimes, other varnish ingredients. Usually applied to metal, such as automobile fenders, and baked at comparatively high temperature of 400°F.

JAPAN DRIER: A liquid drier containing sufficient resin to form a hard film with considerable coherence when used alone. Generally used for blending with oils, paints, varnishes and enamels to hasten their drying.

JAPANESE LACQUER: A varnish made from the sap of a species of tree that grows in Japan. As it dries it becomes very hard and black. Black baking Japans were first made to imitate the results produced by Japanese lacquer.

JAPAN WAX: A soft wax with melting point of about 127°F obtained from a bush that grows in Japan.

JELL: The act of taking on body or becoming gelatinous or jelly-like.

KAOLIN: Another name for china clay.

KAURI: A natural resin derived from the exudation of the pine-like kauri tree in New Zealand. Ranges in hardness from the fossilized "brown" kauri dug from the earth, to the contemporary "bush" kauri that is gathered from living trees.

KAURI-BUTANOL VALUE: A measure of the solvent power of petroleum thinners, expressed as the number of milliliters of the product under test required to cause cloudiness or turbidity in 20 grams of a solution of kauri in butyl alcohol, which has been prepared under standardized conditions.

KETTLE BOILED OIL: A vegetable oil that has had its drying properties improved by the incorporation of driers that are added while heating the oil in open kettles.

KILN: A room or separate compartment with regulated heat and proper circulation of fresh air used to cure a coating. The relative humidity may also be controlled.

KNIT: Description of two coats that cannot be separated or peeled apart after drying.

LAC: A natural resin exuded by insects, which eat the sap of trees in India. When melted and strained, lac forms shellac.

LACQUER: A thin-bodied, quick-drying coating material that forms a hard film. Originally, it referred to solutions of shellac and other resins that dried by evaporation alone. Subsequently, the term referred to the oriental products derived from the sap of certain trees in China, Burma and Japan. Still later, the term referred to thin, hard baking varnishes used for coating food cans made from tin plate and similar metal articles. The term now refers to mixtures of solutions of nitrocellulose, ethyl-cellulose, natural and synthetic resins that dry by evaporation alone.

LAKE: A pigment made by precipitating an organic dye upon a base of inert, translucent pigment of an inorganic nature.

LAMPBLACK: A black organic pigment made by burning oils, fats, greases or other organic matter in an insufficient supply of oxygen to produce a dense smoke that contains particles of carbon. When this carbon is separated, it forms lampblack, which is used as a black pigment for coloring and tinting paints and enamels.

LAP: When used as a verb, it means to lay or place one coat so its edge extends over and covers the edge of a previous coat, causing an increased thickness where the two coats meet. When used as a noun, it is that portion of a coat of finishing material that extends over the edge of and onto a previous coat.

LATENT HEAT: The quantity of energy that is absorbed or released as a substance undergoes a change of state, that is, as it changes from a solid to a liquid, or from a liquid to a gas, or from a liquid to a solid. There is no change in its temperature.

LATENT SOLVENT: An organic liquid that dissolves a resin, such as nitrocellulose, only when mixed with a true solvent.

LATEX: Any of several naturally occurring milky saps containing hydrocarbons that tend to congeal into plastic masses upon exposure to air. Modern latex resins are produced synthetically with the largest application area being water-based architectural coatings.

LEADED ZINC: A mixture of zinc oxide and basic lead sulphate derived by heating a mixture of lead and zinc ores or by blending pure zinc oxide and basic lead sulphate by mechanical means. Used as a white pigment for protective coatings.

LEAFING: That property of flat pigment particles, such as metallic powders and mica, to align themselves in a more or less parallel manner with the coated surface, when mixed with vehicles and spread in a thin film.

LET DOWN: To dilute the color strength of a pigment by mixing it with a colorless, translucent mineral pigment. This term is also used to describe thinning or reducing a liquid coating.

LEVELING: The ability of a film to flow out free of ripples, pock marks, orange peel, brush marks, runs, sags or other surface defects after application.

LIFE: An expression of the period of time a film will retain elasticity or durability.

LIFTING: The softening and penetration of a dried film by the solvent action of a second film applied over it. Specifically, "lifting" results in the raising and wrinkling of the previously dried first coat.

LIGHT FASTNESS: The ability of a color or of a dried film to remain unchanged when exposed to brilliant light.

LINOLEATE: A metallic soap made from linolic acid, the fatty acid from linseed oil.

LINOLEIC ACID: A yellow oily liquid that occurs as a glyceride in linseed and many other drying vegetable oils.

LINOLENIC ACID: A colorless oily liquid of slightly different chemical composition than linoleic acid, which also occurs as glycerides in linseed and many other drying oils.

LINSEED OIL: A yellowish oil obtained by crushing the seeds of flax which contain a mixture of glycerides of several fatty acids. Has the ability to absorb oxygen from the air and gradually form a tough hardened coating when exposed in a thin film. Generally used as a vehicle in paints and as the softening agent for resins in the manufacture of varnishes.

LIQUID PLASTIC: A synthetic resin in liquid form that hardens to a plastic sheet after being applied and subjected to heat.

LITHOL RED: A non-bleeding pigment made by precipitating a complex red dye on a blanc fixe base.

LITHOPONE: A synthetic white pigment used largely in interior finishes and undercoats that is produced by the reactions of barium sulphide and zinc sulphate to form zinc sulphide and barium sulphate.

LITHO VARNISH: An oil that has been thickened by heat. Used in printing inks and for similar purposes.

LIVERING: An increase in the consistency of a coating material while in the package to form a viscous, rubbery, liver-like mass. This can be caused by a chemical reaction between various ingredients or a change in the colloidal nature of the product.

LONG OIL VARNISH: A varnish that is relatively low in resin content and high in oil content. Usually contains more than 25 gallons of oil per 100 pounds of resin.

LOUSY: There are two definitions for this term:

1. A varnish is termed "lousy" when it contains small particles of solid matter that were not removed by filtering.

2. A brush is termed "lousy" if it contains particles of partially dried material that are transferred to the work.

LUMINESCENCE: The property of glowing in the dark after exposure to visible or ultraviolet light. Luminous paints are of two varieties, depending upon the ingredients used:

1. Fluorescent paints glow only as long as exposed to the activating rays.

2. Phosphorescent paints continue to glow for hours after exposure to light.

LUSTER: The gloss, shine or brightness of a finished surface. See "GLOSS."

MACERATE: To soften by soaking in a liquid either with or without heat.

MAGNESIUM SILICATE: A white inert pigment produced from natural deposits. This is a complex combination of silicic acid, magnesium and water of crystallization.

MALEIC RESIN: Synthetic resins made by polymerizing maleic acid or maleic anhydride with a polyhydric alcohol, rosin or some similar substance.

MANILA RESIN: A natural resin, found in the East Indies and imported from Manila.

MATERIAL SAFETY DATA SHEET (MSDS): A document that states specific properties, safety considerations, and handling suggestions for a designated material (such as a chemical).

MEDIUM: The liquid that is used to disperse pigments. Another name for "VEHICLE" or "BINDER." When speaking of colors, the term is used to describe a color approximately midway between a light and dark shade of the same hue, such as medium blue.

MELAMINE RESINS: Synthetic resins made from melamine and formaldehyde. They cure quickly at relatively low temperatures and are quite stable in color, even when exposed to high temperatures.

MENHADEN OIL: One variety of fish oil.

MICA: A mineral silicate that readily separates into thin sheets. When powdered, it is sometimes used as an inert pigment in paint products.

MICROMETER: A device used for measuring the thickness of pigments.

MICRON: One thousandth of a millimeter. This is the standard unit of size in measuring the particle size of pigments and similar materials.

MILKING: This describes using ones finger to remove an accumulation of varnish that has formed a heavy, fatty edge at the bottom of an upright surface.

MILKY: Having the appearance of milk or showing some whiteness, as when water is mixed with varnish or when a dried transparent film starts to turn white from moisture.

MILL WHITE: A white paint or enamel used on large interior surfaces, such as the walls of factories.

MINERAL BLACK: A black pigment made by pulverizing shale or slate.

MINERAL OIL: Any oil derived from a petroleum base, also known as "paraffin oil" and "liquid paraffin." The boiling point is usually above 675°F.

MISCIBILE: This describes the characteristic of a substance that is capable of being mixed in any ratio without separation of the two liquids.

MISTCOAT: A coat of thinner or thinner mixed with a small amount of lacquer that is applied as a final coat to increase smoothness.

MOBILITY: The ease with which a liquid flows or moves. The opposite of viscosity.

MOISTURE: Very finely divided particles of water present to a moderate degree in the air or in a material.

MOISTURE REPELLENT: The property of resisting the passage of moisture through a dried film of finishing material.

MUDDY: When speaking of clear materials, this describes the lack of a bright, clear, transparent appearance. A muddy color is one having a trace of brown in it, which takes away the purity or brightness of the color.

MULLING: This is the act of thoroughly mixing pigments and liquids together, either by hand, as with a pestle and mortar, or by passing the mixture through a mixing machine.

MUSHY: Soft and pliable, not hard.

NAPHTHENATE DRIERS: Salts of naphthenic acid and various drying metals, such as lead, manganese and cobalt, that are usually used in solution form.

NATURAL COLORS: Inorganic pigments derived from natural sources rather than manufactured or synthetic pigments.

NATURAL RESINS: The hardened sap of trees used in the manufacture of varnish, as distinguished from synthetic resins.

NAVAL STORES: The products of the sap of the pine tree known as rosin, turpentine and pine oil.

NEUTRAL: Neither acid nor alkaline, therefore, not reactive in a chemical sense.

NEUTRAL COLOR: A dull or grayed color that harmonizes or blends readily with other colors. For example, a neutral gray is one of medium value, midway between light and dark gray.

NEUTRAL OIL: A light gravity mineral oil obtained by the distillation of petroleum and often used as the lubricant for rubbing a dried film with pumice stone, sandpaper or other abrasive materials.

NIBS: Foreign particles such as lint and dust, which when mixed with a finishing material during application form raised specks in the dried film.

NIGROSINE: A spirit soluble blue-black dye used in stains.

NITROCELLULOSE: The product obtained by nitrating cellulose, in the form of linters, cotton waste, wood pulp, etc., by treatment with a mixture of nitric and sulphuric acid. For different purposes, the cellulose is nitrated to various degrees. The NC used for manufacturing lacquers contains about 12% nitrogen.

NITROGEN OXIDES (NO_x): A colorless, odorless gas that is a primary component in creating ground level ozone (SMOG). Main sources include automobiles and fossil burning power plants.

NODULAR: Spherical in shape, especially used to describe pigment particles.

NONBLEEDING: The opposite of bleeding - not soluble in succeeding coats See "BLEEDING" above.

NONDRYING: When spread out in a thin film, these substances lack the ability to absorb oxygen from the air or to change from a liquid to a solid state. Mineral oils, castor oil, peanut oil and coconut oil are examples of nondrying oils.

NONVOLATILE: That portion of a material that does not evaporate at ordinary temperatures; the solid substances left behind after the volatiles have evaporated.

NUANCE: A small gradation or slight degree of difference in color. It shares somewhat of the same meaning as or "TINGE." For example, a color called Indian Red could be described as a brownish-red with a purple nuance, or tinge.

NUBS: One size of the gradings of natural resins. Nubs, which are about the size of the end of the finger, are smaller than "bold", but larger than "seed" or "dust" gradings.

OCCLUDE: To take in or retain a material in the pores of another material. For example, many pigments contain occluded air.

OCHRES: Earthy iron oxide pigments, usually yellow or brown in color, consisting of hydrated ferric oxide mixed with varying amounts of clay, sand and other materials.

ODOR: That property of a substance that is perceptible by the sense of smell, specifically, the smell, scent or fragrance of a material.

OFF COLOR: Not matching the color of a standard with which a material is being compared.

OIL: This is a smooth, greasy feeling liquid. Oils are classified according to their origin as: vegetable, animal or mineral. Moreover, oils are fixed or fatty and volatile or essential, according to their behavior upon being heated.

OIL ABSORPTION: The quantity of oil required to wet a definite amount of pigment to form a stiff paste during the grinding process.

OIL COLORS: These are colors that have been ground to a paste or semi-paste consistency in a vegetable oil.

OIL DRIERS: Liquid driers that contain little or no resin but do contain considerable vegetable oil.

OIL LENGTH: The number of gallons of oil cooked with 100 pounds of resin. A short oil varnish contains less than 10 gallons; a medium oil varnish contains from 10 to 25 gallons; a long oil varnish contains in excess of 25 gallons.

OIL POLISH: A polishing material that contains oil as one of the ingredients. This can also refer to the finish obtained by rubbing successive thin coats of linseed oil on wood.

OIL RUBBING: The process of dulling the luster and smoothing the surface of a dried film of finishing material by rubbing it with pumice stone or other abrasive materials while lubricating the surface with oil.

OIL SOLUBLE: Capable of being dissolved in an oil.

OIL STAINS: Those stains that contain oil or that are made from oil colors.

OIL VARNISHES: Varnishes that contain oil and that harden by oxidation and polymerization, as contrasted to spirit varnishes that harden exclusively by evaporation of volatile solvents.

OLEATE: A metallic soap having oleic acid for its acid constituent.

OLEORESINOUS: A type of varnish made by combining oil and hard resin by heating them in a kettle, as contrasted to synthetic varnishes.

ONE WAY DRUM: A light-gauge steel drum designed for one time use

only and therefore also referred to as "one time shippers."

OPACITY: The degree of obstruction of the transmission of visible light. Another expression for "HIDING POWER."

OPAQUE: A descriptor for a coating that is able to hid or make invisible the underlying material. Opposite of transparent.

ORANGE MINERAL: A type of red lead that has an orange color. It is made by heating basic carbonate of white lead in special furnaces.

ORANGE PEEL: A pebbled surface similar to that of an orange skin. This is generally caused by the coating not leveling out completely after application by spraying.

ORGANIC COLORS: Pigments of animal, vegetable or dyestuff origin; specifically, those containing carbon, hydrogen and oxygen but no minerals.

OVERBAKED: In referring to films, this can mean an overly hard or brittle film or one that is badly discolored by the application of too much heat for too long a period.

OVERTONE: The mass color, self color or top color as exhibited by reflected light in contrast to the undertone that may show through the main color.

OXIDIZE (Oxidation): To chemically unite with oxygen.

PALE: This adjective describes a substance that is not dark or lacks color intensity.

PAPER MARKING: Furniture and other finished objects are often wrapped in paper for shipment. When the paper sticks to the finish in transit or leaves a mark in the finish, the article is said to be "paper marked."

PARAFFIN OIL: A light gravity mineral oil often used as a lubricant for sanding or rubbing a dried film of finishing material.

PASTE: A stiff plastic mixture of pigment and vehicle.

PEBBLING: Similar to "ORANGE PEEL." Describes a roughened surface after spraying, due to insufficient flowing of the coating.

PEELING: A defect in a dried film that occurs when large pieces become detached from the underneath surface and come loose in sheets or large flakes.

PENETRATING STAINS: Those stains that penetrate into the surface of the wood. These stains are usually made of dyes dissolved into liquids that easily penetrate the wood.

PERRILA OIL: An oil obtained from plants grown in China and Japan and often used in place of linseed oil in the manufacture of varnish.

PERISH: Loss of life or elasticity in a dried film of finishing material.

PERMEABILITY: The ability of a material to allow another material to pass through it without rupture.

PETROLEUM SPIRITS: Another name for "mineral spirits."

PFUND GAUGE: An instrument for measuring the thickness of a film that is not dry.

PHENOLIC RESINS: Synthetic resins made by condensing phenol with formaldehyde or similar aldehydes.

PHOSPHORESCENT: Exhibiting light or glowing after exposure to light.

pH VALUE: The concentration of the hydrogen ion in a material. A pH value of 7 is considered neutral. Lower values indicate the material is acidic; higher values indicate it is alkaline.

PICKING UP: The softening and raising of underneath coatings by the solvent action of coats applied over them.

PIGMENT: The fine, solid particles used for color or other properties in the manufacture of paint and enamel.

PIGMENT STAINS: Those stains that get their color primarily from pigments mixed with binder and volatile thinners.

PILING: Describes an excessive quantity of finishing material. Also, this term is used if the material does not level out by flowing smoothly.

PILL: The soft ball produced by chilling varnish when the resin and oil have been thoroughly combined before thinning.

PINE OIL: A naval stores product consisting of a complex mixture of turpenes, alcohols, ketones and ethers that is obtained by distilling the sap of pine trees.

PINE TAR: The black residue obtained by the destructive distillation of the sap of the pine tree or of the wood itself.

PINHOLING: The appearance of fine pimply defects in a dried film, due to bubbles or other causes, which result in small holes in the film after the tops have been removed by rubbing or sanding.

PITCH: This is the black residue left from the distillation of tar, oil and similar materials.

PITTING: These are small holes that appear in a dried film, which are usually caused by moisture, grease, or some volatile substance that escapes from the film late in the drying process when the finishing material is unable to flow and fill in the void.

PLASTICITY: Plastic materials hold their shape under normal conditions, but are deformed when heat, pressure or abnormal conditions are applied. The ability to flow under stress without ripping or tearing.

PLASTICIZER: A softening material that is added to lacquers or other compounds in order to impart elongation, elasticity and flexibility.

POCK MARKS: See "ORANGE PEEL."

POISE: This is the absolute unit of viscosity. For example, a material has a viscosity of one poise when a force of one dyne is required to move a surface film of one square centimeter at the rate of one centimeter per second when that surface is separated from a parallel

surface by a film one centimeter in thickness.

POLARIZED LIGHT: Light which vibrates in one plane or direction only.

POLISH: This word has several meanings:

1. The act of increasing the luster of the dried film of a finishing material by friction;

2. The material used for producing a high luster;

3. A brilliantly glossy finish that is produced by polishing;

POLYMERIZATION: The reaction by which two or more molecules of a given substance combine with each other to form a compound from which the original substance can be regenerated.

POLYSTYRENE RESINS: These are synthetic resins formed by the polymerization of styrene.

PONTIANAK RESIN: A semi-fossilized Manila copal.

PONY MIXER: A small mixer used for mixing pigments with liquids.

POPPYSEED OIL: A semi-drying oil that is obtained from the seed of various species of poppy plants.

POROUS: This describes material that is not dense or has small voids or holes that absorb topcoats of finishing material.

POWDERING: This is a defect exhibited in some short oil finishes that form a powder when friction is applied. This also describes the general appearance of a powder on a film due to age or any other cause.

PRECIPITATE: The solid substance separated from a liquid by either a chemical reaction or by the application of light or heat.

PRIMARY COLORS: In pigments the primary colors are yellow, crimson-red and blue. In the color spectrum the primary colors are scarlet-red, green and violet. These are the basic colors from which all other colors are made.

PRIMER: The coat of material that is applied directly over the uncoated surface.

PRINTING: The impression left in a film of dried finishing material after pressure has been removed.

PROTECTIVE COATING: Any coating that protects the surface from deterioration.

PROXIMATE ANALYSIS: The testing of a material to determine the types of compounds or elements present without determining the amounts of each. This is another expression for "QUALITATIVE ANALYSIS."

PUCKERING: The crinkling or shriveling of a material upon drying.

PUDDING: The wrinkling of a coat of finish that thickens due to aging in the package.

PUDDLING: This refers to the application of excessive heavy, uneven coats of finishing material.

PULL OUTS: These small holes are caused by rubbing dirt nibs or other defects out of a dried film of finishing material.

PULLING UNDER THE BRUSH: This is the term for the resistance to brushing caused by too much viscosity, too fast drying or other properties that prevent easy and fluent brushing.

PULVERIZED: Powdered.

PUMICE STONE: A powdery substance of volcanic origin that is used as an abrasive in rubbing the dried film of finishing materials.

PURITY: This term describes a material or product that is unadulterated.

PUTTY: This is a pasty material consisting of pigment and binder that is used for filling imperfections in the surface to be coated or for holding windowpanes in place.

PYROXYLIN: See "NITROCELLULOSE."

QUALITATIVE ANALYSIS: See "PROXIMATE ANALYSIS."

QUALITY: The character, nature, or physical properties belonging to a material or product. This can also refer to the subjective quality of a product. For example, a quality product can be a superior or excellent one.

QUANTITATIVE ANALYSIS: An analysis to determine the amounts and kinds of compounds or elements present in a material.

QUANTITY: This is the amount, bulk, mass, weight or measure of an item.

QUICK DRYING: This is a material that dries in less than 4 hours.

QUIESCENT: This term describes the quality of being in a state of repose; still; not moving; dormant.

RAIN SPOTS: A defect in a dried film caused by drops of water depositing small quantities of mineral matter onto the surface of the film.

RAPESEED OIL: An oil of a dark brown or pale yellow color, having an unpleasant odor. This oil, obtained from the seeds of certain plants, is used to some extent as a plasticizer because of its poor drying properties.

RAT TAILING: A defect in a dried film caused by a bubble or a small piece of dirt that flows downward on a vertical surface in such a way as to leave a thinner film of finishing material above it, due to the material having lost its flowing power.

RAW MATERIALS: These are the natural, untreated or unprocessed materials from which coatings are made.

RAW OIL: Linseed oil in its natural, untreated condition.

RAW SIENNA: One of the brown earth colors used in the manufacture of pigmented stains and fillers. It is a mixture of ferric oxide and silica or silicates.

RAW UMBER: A brown earth color, consisting of iron oxide, manganese oxide and silica or silicates, that is used in the manufacture of pigmented stains and fillers.

RECEDING COLORS: These are colors, which are generally the cooler shades of blue or green, which give an illusion of withdrawing into distance.

REDUCE: To lower the viscosity of a material or to thin a material by adding a solvent, thinner, varnish or oil.

REDUCER: The volatile materials included in a paint, varnish or lacquer to reduce its viscosity. A reducer can also refer to the volatile materials added to the coating by the user.

REDUCING OILS: Special oils used for mixing with or thinning of pigmented coatings.

REFINED: This term describes a product or substance that is purified, clarified, or separated from extraneous matter.

REFLECTION: The ability of a surface to throw back light, heat, etc., in its substantially original form. Rough surfaces will reflect in a multitude of directions, and such reflection is said to be "diffuse." Smooth, brightly polished or glossy surfaces reflect clearly and sharply at the same angle to the surface as the angle at which the light or heat contacted the surface.

REFLECTOMETER: An instrument for measuring the luster or sharpness of the reflection of a finished surface.

REFRACTIVE INDEX: This is the ratio of the velocity of light in a certain medium compared with its velocity in air.

RELATIVE HUMIDITY: This is the percentage of water vapor in air at a given temperature as compared to the total amount of water vapor the air could hold at that temperature, expressed as a percentage.

RESIN: A solid or semi-solid organic substance that is usually derived from the sap of trees or by chemical synthesis. Resins are generally used in the manufacture of varnishes, lacquers and similar coatings.

RESINATE: This is any salt of a rosin acid. The heavy metal resinates are used as driers for paints and varnishes.

RETARDER: A slowly evaporating solvent that decreases the evaporation rate or slows the drying of lacquers and similar materials.

RIBS: These are raised ridges in the finish caused by heavy brush marks that were not removed by sanding or rubbing before the final coat was applied.

RICH: This describes the quality of a substance or product as vivid, deep, not faint. This can also mean abundant in special qualities.

ROLLER COATING: A method of applying finishing materials to flat surfaces by passing the surface between rollers, one or both of which are coated with the material.

ROLLER MILL: A paint mill consisting of hardened steel rollers that revolve in opposite directions at different speeds. This mill produces a sheering action that causes pigment particles to be dispersed in the vehicle when a mixture of pigment and vehicle is passed between the rolls. During the milling the paint is transferred from one roll to another until it is finely ground.

ROPY: Description for a sticky or stringy consistency that will not allow the material to level or flow out smoothly after application.

ROSIN: The resinous material obtained by distilling turpentine and other volatile materials from the sap of pine trees. Also called "COLOPHONY."

ROSIN OIL: A viscous oil obtained by the destructive distillation of rosin.

ROTTENSTONE: A soft, siliceous limestone in pulverized form used as an abrasive and polishing agent for dried films of finishing materials. Also known as "TRIPOLI."

ROUGH STUFF: A surfacing material formerly used extensively in the automotive industry for filling the imperfections in the metal. When dry, it was rubbed to a smooth surface with an abrasive and then coated with color varnish or other finishing coats.

RUBBER FINISH: A black finish that has the luster and appearance of hard rubber.

RUBBER RESINS: Resins derived from rubber by chemical treatment and used for making certain coatings.

RUBBING: The act of applying mechanical friction, usually in conjunction with an abrasive and a lubricant, to a film of finishing material to: bring it to a level, smooth surface; deaden the luster; or remove specks of dirt; etc.

RUBBING BLOCK: A block of felt, sometimes mounted on a wooden block, used in connection with an abrasive and a lubricant for rubbing dried films of finishing materials.

RUBBING OIL: A pale, medium-heavy mineral oil used with pumice stone or other abrasives as a lubricant for rubbing the dried film of finishing materials.

RUBBING VARNISH: A varnish that is so constructed as to withstand rubbing with an abrasive and a lubricant within a reasonable time after being applied.

RUNS: Defects in a dried film caused by an excessive amount of material being applied, usually in an uneven manner, so that a portion of the material flows down in an irregular or curtained manner.

SAGS: This describes the irregularity of film thickness due to uneven flow.

SANDING SURFACER: A heavily pigmented finishing material used for building the surface to a smooth condition. It is sanded when dry.

SANDPAPER: A paper coated with an abrasive material that is used for surfacing wood, metal or finishing materials.

SANDY: A term used to describe the roughened surface of a finishing material caused by unground pigment particles, skins, dirt or similar foreign bodies.

SAPONIFICATION VALUE: The number of milligrams of potassium hydroxide required to neutralize (saponify) all the acid in one gram of an oil or resin.

SATIN FINISH: This describes a finish with a luster similar to that of satin and having between a full gloss and a semi-gloss luster.

SCALING: A term used to describe the cobwebby appearance of varnish when the topcoat has been rubbed through, showing the next coat of varnish underneath. The term also describes an aggravated form of flaking, in which large pieces of the dried finishing material come off and expose the bare surface below.

SCHEDULE: A statement of the sequence of operations, such as the types of finishing materials; amounts of reduction; methods of application; drying times and temperatures; and sanding and rubbing operations, used in obtaining the finish on the work.

SCRATCHES: Slight incisions, breaks, tears or indentations on a surface.

SEALER: Any finishing material that is applied for the primary purpose of stopping the absorption of succeeding coats.

SEBACIC ACID: An organic acid used for making synthetic resins through combinations with glycerine or other alcohols.

SECONDARY COLORS: A mixture of any two primary colors. For example, the primary colors blue and yellow, when mixed, produce the secondary color green.

SEEDING: The formation of grains of undissolved resin in a varnish or lacquer or the formation of pigment aggregates from small individual particles in a paint caused by severe chilling or thinners.

SEMI-DRYING OIL: An oil which only partially hardens when a film is exposed to the air as contrasted to one which hardens completely (a drying oil), or one which does not harden at all (a non-drying oil).

SEMI-GLOSS: A luster midway between a full gloss and a dead flat.

SEPARATION: The breaking up or segregation of two or more integral parts of a mixture into its component parts. For example, in a varnish this may take the form of the resin becoming insoluble in the other ingredients; or in a paint or enamel, where a clear liquid portion forms above the pigmented portion. Generally, in liquid there may be a segregation of layers of component liquids.

SETTING-UP TIME: The time required for the initial drying stage of a finishing material, whereby it has lost its ability to flow, but is still soft and plastic.

SETTLING: The separation of a pigment or other solid ingredient from a coating material upon standing.

SET TO TOUCH: An initial stage of drying when sufficient solvents have evaporated so that the film hardens enough that it can be touched lightly without adhering to the finger.

SHADE: Describes the degree of intensity of a color, such as a dark or light green. This also describes the act of changing the tone or degree of color by adding small quantities of other colors to it.

SHARP DRYER: A term applied to finishing materials that dry quickly and completely through all layers without a mushy effect.

SHARP LUSTER: This term describes a very high luster.

SHEARY: This describes a finishing material that is not uniform in luster after being applied and dried.

SHEEN: The degree of luster of the dried film of a finishing material. This term is usually used to describe the luster of rubbed surfaces or of flat drying materials.

SHELLAC: The resinous material secreted by an insect that feeds upon the twigs of certain trees in India. It is soluble in alcohol to form liquid shellac, which is used as a sealer and finishing material for wood.

SHELLAC SUBSTITUTE: A spirit varnish made by dissolving various resins in denatured alcohol or other solvents to produce a coating that has characteristics similar to those of shellac varnish.

SHINE: A dried film of finishing material that has a high gloss.

SHORT: This term describes the quality of lacking toughness or elasticity. For example, a dried film is "short" when it is brittle. Additionally, an undried material is "short" when it is crumbly or does not flow easily.

SHORT OIL VARNISH: This is a varnish that is relatively high in resin content and low in oil content.

SHRINKAGE: The disruption of the level plane of a finished surface with age, whereby the thickness of film appears to diminish or the luster dies away. This condition can be caused by repeated slight movements of the wood or of underneath coats of material.

SICCATIVE: A coating that dries or hardens through oxidation rather than by evaporation or polymerization.

SIENNA: An earth pigment of a yellowish-brown, or reddish-brown color used in paints, stains and fillers. The color is derived from the presence of oxides of iron and manganese.

SILICA: An inert pigment used as an extender in paints and in paste wood fillers

SILICATE OF SODA: This is the chemical name for water glass. It is soluble in water, dries to a hard transparent film and is slightly alkaline.

SILKING: These are the parallel hair-like lines in the surface of finished work that has been brushed or dipped. These lines are found in the direction of the flow. A color float can cause this condition.

SINKING IN: Describes a finishing material when a considerable amount of it is absorbed by the underneath surface.

SIZE: A liquid coating used to seal a porous surface and prevent subsequent coats from being absorbed.

SKIN: This is the film of oxidized or polymerized finishing material that forms on the surface while in the container or in a tank.

SKIPS: Uncoated parts of a surface that have been unintentionally left bare.

SLUSH: The act of applying a finishing material roughly by dipping, spraying or brushing. Some types of slush are: slush oils, which are rustproofing coatings for steel, and pumice slush, which is the finely divided slurry produced by rubbing.

SMOKY: Describes a finish when it has a cloudy look and is not bright, transparent and high in gloss.

SOFT: Easily deformed or penetrated. The opposite of hard.

SOFTENERS: See "PLASTICIZERS."

SOLID: A body of matter that will not yield or flow except under extreme force.

SOLID COVERING: Having the ability to obscure the underneath surface in one coat.

SOLUBLE: Able to be dissolved in a liquid.

SOLUBILITY: Describes the amount of a substance that will dissolve in another substance. Generally, the more fluid the substance becomes, the greater the solubility.

SOLUTION: This is a liquid substance that is homogeneously mixed with another liquid.

SOLVENT: A liquid substance that is capable of dissolving or dispersing other substances.

SORTS: One of the size gradings for resins, referring to rather large pieces that have been sorted for color and size.

SOYBEAN OIL: A semi-drying oil obtained from the soya bean, which is grown extensively in Asia and in the United States. When combined with resins or other chemicals, it produces synthetic varnishes.

SPAR VARNISH: A very elastic waterproof varnish used originally for coating masts and spars on sailing vessels.

SPATULA: A long, flexible knife used for mixing colors and other similar purposes.

SPECIFIC GRAVITY: The ratio of the weight of a given volume of a substance to the weight of an equal volume of distilled water at a temperature of 62°F.

SPEWING: The separation of one or more components of a finishing material on the surface of the film during the drying process. This is usually caused by incompatibility.

SPIDER LEGS: Describes the condition when the paint on the upright surface separates or breaks and the vehicle runs down in long, crooked channels.

SPIRIT STAIN: A stain made by dissolving a dye in alcohol.

SPIRIT VARNISH: A varnish made by dissolving resin in alcohol or other volatile solvents in such a way that the varnish dries by evaporation, rather than by oxidation or polymerization.

SPLIT: This describes the condition of a finishing material separating into two or more distinct parts upon standing.

SPOTTING: This is the condition describing the formation of small off-color areas on a finished surface.

SPRAYING: The act of applying a material by means of compressed air through a spray gun in such a manner as to break up the material into a fine mist and to blow it onto the work.

SPREADING RATE: The number of square feet of surface that can be covered with a gallon of a given finishing material by a given method of application.

STABILIZER: Any substance added to a coating material to make it more stable in the package or while being applied.

STAINING: The act of changing the color of wood without disturbing the texture or markings. This change is accomplished through the application of transparent or semi-transparent liquids made from dyes, finely divided pigments or chemicals.

STEAREATE: A soap of stearic acid.

STEARIC ACID: An organic acid obtained from many fats and oils used for making metallic soaps, which in turn are used as fatting agents or as a coating for pigment particles.

STIFF: A material that is difficult to apply using a brush because it has a high viscosity.

STIPPLED FINISH: This is a finish with a slightly roughened or pebbled surface produced by pounding the material with the ends of the bristles in a stiff brush, or other suitable means, while the material is wet.

STOCK: The amount of material on the work. For example, if the film thickness is not great enough, it is said that there is not enough stock on the work.

STONE MILL: A paint grinding mill in which paint passes between two flat pieces of roughened stone - one stationary, the other revolving.

STRENGTH: The relative tinting or hiding power of a colored finishing material.

STRIKING IN: The defect produced by a coat of finishing material that softens and partially penetrates an underneath coating.

STRING: A finishing material with a partially hardened film that stretches out to a thin thread when pulled instead of breaking.

SUBLIMATION: A change of state from a solid to a gas that occurs without going through the liquid state. The melting of dry ice or solid carbon dioxide is an illustration of sublimation.

SUNDAYS: Skipped places caused by failure to entirely cover the surface at the time the finishing material is applied.

SURFACE: The outside or exterior boundary of any substance. One is said to "surface" the work when they rub or sand it to a smooth, level plane.

SURFACE DRYING: This occurs when a coating dries on top but remains relatively soft underneath.

SURFACER: Any finishing material that is used to produce a smoother surface.

SURFACE TENSION: The attractive force exerted on surface molecules of a liquid by the molecules beneath. This results in the drawing of the surface molecules of the liquid into the shape that yields the least surface area. This term also means the modifying of one phase in contact with another.

SUSPENSION: A substance that has its particles mixed with, but undissolved, in another liquid.

SWEATING: This describes the condition of a coating becoming more or less glossy again after being dull-rubbed. Rubbing the coating before it is sufficiently dry can cause this condition.

SYNTHETIC: Describes any item that is prepared artificially or chemically rather than occurring naturally.

TACK FREE: That condition when a film of finishing material has reached the point that the surface can be touched lightly without a sensation of stickiness.

TACK RAG: A piece of loosely woven cotton cloth that has been dipped into varnish and wrung out. It soon becomes tacky or sticky and is used to wipe a surface to remove small particles of dust.

TALC: Also known as soapstone. This is an inert pigment used in paints that is a flaky or fibrous form of hydrated aluminum silicate.

TALL OIL: A vegetable oil-resin by-product of the manufacture of wood pulp.

TAR: A thick brown or black viscous liquid consisting of a mixture of hydrocarbons and their derivatives obtained by the distillation of materials of organic origin, such as wood, coal, shale and oil.

TAUTNESS: The degree of tightness of a film or membrane.

TEARS: These are small drops of finishing material at the bottom edge of vertical surfaces that are caused by the surface tension of the material counteracting the pull of gravity.

TENACITY: The ability to hold fast or adhere to a surface.

TENSILE STRENGTH: The ability of a film to withstand pulling stresses.

TEST RACK: An exposure rack on which coated panels are tested for durability under exterior conditions.

TEXTURE: An impression created by a surface structure or the general physical appearance of a surface.

THERMOMETER: An instrument for measuring temperature.

THERMOPLASTIC: A high molecular weight polymer that softens when exposed to heat and returns to its original condition when cooled to room temperature.

THERMOSET: A material that undergoes a chemical reaction when heated resulting in a hardened material when cooled. The material does not soften with additional applications of heat.

THICK: Having a heavy consistency.

THICKNESS OF FILM: This describes the body on the work after the film of finishing material has thoroughly dried.

THIN COAT: A coat of finishing material that is less heavy than usual.

THINNER: A volatile material used to thin or reduce finishing materials.

THIXOTROPHY: The property of certain gels to become liquid upon being shaken or agitated and to coagulate again when left in an undisturbed condition.

THUMBNAIL PROOF: The condition of a film when it has dried sufficiently so as to be resistant to being scratched with the thumbnail.

TIFFANY FINISH: A blended multicolor finish used for decorating interior walls.

TINGE: A faint trace of an altering color.

TINT: A color produced by the addition of another color to white paint or enamel. This can also represent the act of adding a color to the white material.

TONE: A modification of a full color.

TOOTH: That property of a surface that allows the film of succeeding coats of finishing materials to adhere readily.

TOPSTONE: The color reflected by the surface of a film of finishing material.

TOUGHNESS: The ability of a dried film to be bent, indented or distorted without cracking. The opposite of brittleness.

TRANSFER EFFICIENCY: The measure of transfer of a coating from the application source to the substrate. The higher the value-the more efficient the transfer.

TRIPOLI: See "ROTTENSTONE."

TUBE BODY: The consistency of a liquid as noted by the speed with which an air bubble rises through the material in a calibrated glass tube.

TUNG OIL: An oil obtained by pressing the nut of the tung tree which grows in China and neighboring lands. It is hardly ever used in the raw state because it dries to a flat non-lustrous film. When heat–treated, it dries with a glossy finish. It is generally used in making quick-drying, water-resistant varnishes and wrinkle finishes.

TURBIDITY: A cloudiness in a transparent coating caused by finely suspended matter.

TURPENTINE: A volatile thinner produced by the distillation of the sap of pine trees.

ULTRAMARINE BLUE: A blue pigment that is made by heating china clay, sodium carbonate, sulphur and carbon.

ULTRA-VIOLET: Those light rays, outside the visible spectrum at its violet end, that have a chemical effect upon the dried films of finishing materials.

UMBER: A hydrated iron-manganese oxide pigment of a brownish or greenish brown color that is used in paints, pigment stains and paste wood fillers.

UNDER BAKED: Not baked hard, due to insufficient time or temperature or both.

VACATIONS: Skipped or uncoated places in the finished work.

VALUE: The quality by which a pale or light color is distinguished from a deep or dark color of the same tone.

VAPOR PRESSURE: The pressure exerted by a vapor that is in equilibrium with its solid or vapor liquid form.

VARNISH: Any homogenous transparent or translucent liquid which, when applied as a thin film, hardens upon exposure to air or heat; or by evaporation, oxidation or polymerization; or a combination of these to form a continuous film that imparts protective or decorative properties.

VEGETABLE OILS: Oils obtained from various seeds or nuts of vegetable growth.

VEHICLE: The liquid portion of a finishing material consisting of the binder and volatile thinners as contrasted to the pigment or solid matter.

VEILING: The formation of a cobweb pattern in a film that has been applied with a spray gun, due to the rapid evaporation of the solvents.

VINYL RESINS: Synthetic resins resulting from the polymerization of vinyl compounds.

VISCOMETER: An instrument that measures the viscosity of a liquid.

VISCOSITY: The resistance to flowing exhibited by fluids as well as the internal friction of the movement of molecules against each other.

VOLATILE: Readily vaporizable at a relatively low temperature.

VOLATILE THINNER: That liquid portion of a coating material that reduces the consistency for application and evaporates from the film completely.

WARM COLOR: Any color in which red or orange predominates.

WASH COAT: A thin solution of shellac, lacquer or other material applied over a stain to enrich it and to stiffen the fibers of the wood so they can be easily sanded. In special cases, a wash coat is applied to the bare wood to prevent succeeding coats from discoloring it or to enable a glaze to be wiped off easily.

WASHING: A type of paint failure evidenced by formation of a surface powder that is washed off by rain.

WATER COLORS: Colors mixed with or ground in water.

WATERGLASS: See “SILICATE OF SODA.”

WATERPROOFING AGENTS: Products added to protective coatings to improve their ability to withstand water, or sealing materials used for the same purpose.

WATERSPOTTING: An imperfection in a dried film manifested by spotty changes in the color or luster.

WATER STAIN: A stain consisting of dyes dissolved in water.

WATER WHITE: Describes the lack of color, that is, as colorless as water.

WAX: Any of a number of resinous, pliable substances, of plant or animal origin, which are insoluble in water, partially soluble in substances such as alcohols and miscible in all proportions with oils. Used for making polishes and for similar purposes.

WEAK COLOR: A color that does not have a lot of hiding power.

WEATHEROMETER: An instrument used for accelerated testing of coatings for their resistance to exterior exposure conditions. Alternate periods of artificial sunlight and darkness, interspersed with simulated showers, are repeated continuously and automatically until the film shows signs of deterioration. Its durability is then expressed in number of cycles or number of hours of exposure.

WEATHER RESISTANT: Capable of withstanding exposure to the weather.

WEIGHT: That property of a body that tends to pull it toward the center of the earth. Also expressed as the attraction of gravity exerted upon an object.

WEIGHT PER VOLUME: Mass per unit volume at a given temperature. For example, pounds per gallon, kilograms per liter, etc.

WETTING AGENTS: Products that are added to protective coatings to aid the dispersion of the pigment in the vehicle, the penetration of the coating into the surface being treated, and for similar purposes.

WHITING: Finely ground, naturally occurring calcium carbonate used as a filler.

WHITENING: A condition brought about in the dried film of a coating material by the absorption of moisture.

WRITING: An inert white pigment consisting mostly of calcium carbonate.

WIND BREAK: Roughness formed on the surface of a finishing material by a current of air blowing over it while drying.

WIPING STAINS: Those stains, usually pigmented, that are applied and wiped with a cloth to remove the excess stain.

WOOD ALCOHOL: The common name for methyl alcohol.

WOOD FILLER: A pasty material used for filling and coloring the pores of wood. It is usually thinned with solvent, applied to the surface and then wiped off across the grain of the wood, allowing it to remain only in the pores.

WOOD OIL: See "TUNG OIL."

WRINKLE FINISH: A varnish or enamel film which forms fine wrinkles or an irregular surface as it dries. This can also occur when regular varnish is applied too heavily.

YELLOWING: The tendency of a dried film to take on a yellowish cast with age.

YIELD: The quantity of finished product obtained from the quantities of raw materials specified in the formula.

YIELD POINT: The initial pressure required to cause a plastic material to flow.

ZEBRA BOARD: A testing chart with alternate black and white stripes, made non-absorbent by a protective coating. It is used for evaluating the hiding power of pigmented coatings.

ZEIN: An alcohol soluble protein, usually derived from corn, that is used as a binding agent in sealers and as a plastic molding material.

ZINC CHROMATE: A bright yellow pigment that is used to a considerable extent as a rust inhibitor in metallic primers and in similar coatings.

ZINC RESINATE: The metallic soap of zinc and the rosin acids.

ZINC STEARATE: The zinc soap of stearic acid, used as a drier and as a flatting agent.

ZINC SULPHATE: A colorless, crystalline substance, used to some extent as a paint pigment, but mostly for making lithopone.

ZINC SULPHIDE: A white pigment. One of the components of lithopone.

ZIRCONIUM OXIDE: A white pigment made by oxidizing various salts of zirconium.

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